Heart of the Massachusetts Military-Industrial Complex

RAYTHEON COMPANY

Heart of the Massachusetts Military-Industrial Complex

by

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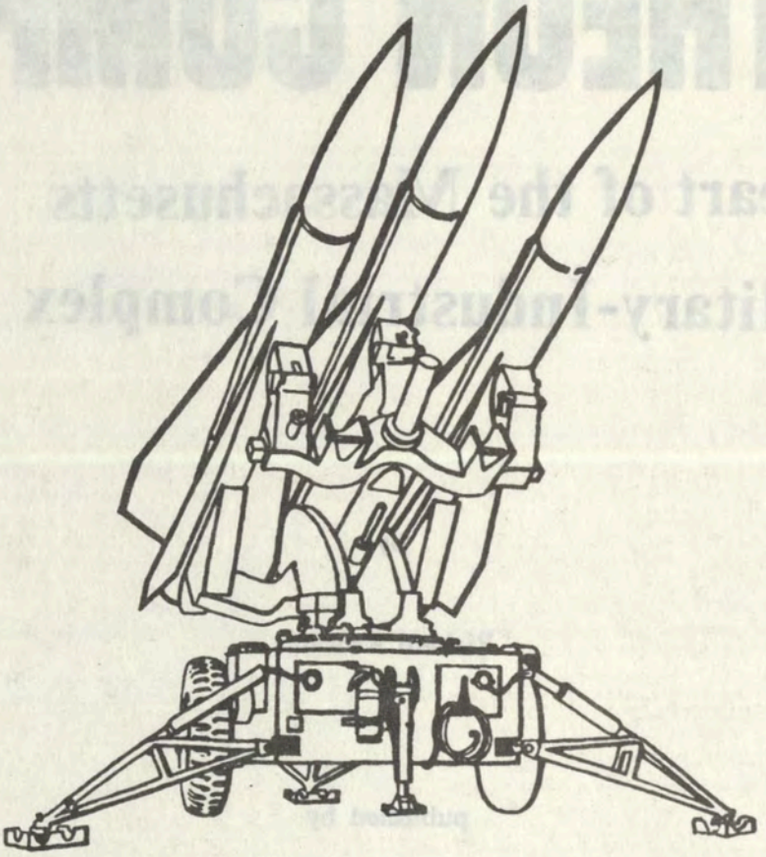
Preface



In this pamphlet we will sketch a portrait of Raytheon Company, emphasizing its role as military producer and its dominant position in the economic and political life of Massachusetts. We will also say a little about "economic conversion" out of military production into the production of more useful goods and services designed to meet real social and human needs.

Our purpose in distributing this pamphlet is to inform people in the state and nation of the dehumanizing effects of many of Raytheon's activities. We encourage concerned individuals and groups to join with us in studying Raytheon and economic conversion, and in long-term community-based efforts to convert Raytheon. It is our belief that communities are responsible for the uses of their own resources.

Many who are concerned about ending the Great Southeast Asian War and limiting the influence of the military point to the Pentagon and the President. But the Executive and the military are in many ways but the reflection of the military companies operating throughout the land. Massachusetts' greatest participation in the war and in military institutions in general is not through the men who are fighting or stationed overseas, but through those right here at home in the factories and laboratories of the state's military firms, of which Raytheon is by far the biggest.

We believe that the citizens and groups who are seriously concerned about the most pressing problems of our time will more and more turn their attention upon Raytheon and demand a strong say in the economic decisions that determine the use of much of the state's human and economic resources.

CONTENTS

1. What weapons does Raytheon make? . . . . . p. 1.
2. The Raytheon-Massachusetts military-industrial complex . . . . . 1.
3. What is economic conversion? 3
4. Raytheon, Vietnam, and the air war . . . . . 6.
5. President Phillips is misleading in denying Raytheon's Vietnam role . . . 6.
6. Raytheon and the nuclear arms race . . . . . 8.
7. Raytheon, the B-1A, and the SST . . . . . 9.
8. The Hawk and the Sam-D . . . . . 9.
9. Raytheon's excessive military profits . . . . . 11.
10. High investment in aerospace operations like Raytheon's is buying less and less national security at increasing costs . . . . . 14.
11. Raytheon decided tollay off production workers and engineers instead of investing in research and development for conversion . . 14.
12. The diversification program . . . . . 16.
13. Raytheon opposes conversion . . . . . 18.
14. Raytheon as educator: Northeastern University . . . . . 19.
15. Convert Raytheon . . . . . 20.

Footnotes . . . . . 21.

Appendix I locations of military facilities . . . . . 23.

Appendix II board of directors . . . . . 24.

Appendix III Lowell, Raytheon community . . . . . 26.

WHAT WEAPONS DOES RAYTHEON MAKE?

Raytheon navigational bombing radars guide B-52 bombers in their daily runs over the free-strike zones in Vietnam, Laos, and Cambodia. Raytheon makes a small percentage of the bomb fuzes for the war. Its electronic countermeasures equipment and communications gear also see use in Vietnam. But most of the war business accruing to the company is from its Hawk, Sparrow, and Sidewinder missiles which are designed to protect ground installations and aircraft from attack by hostile aircraft.[1] It is these missiles that make our air force secure, and thereby make possible the newly developing warfare strategy: the anti-personnel air war.

More than anything else, the Hawk surface-to-air missile has turned Raytheon into one of the biggest 100 companies in the United States. The Hawk, the Army's principal air defense weapon, is produced and stationed in countries all over Europe, and in Japan as well. It has been sold to Saudi Arabia and to both Jordan and Israel. In 1960, over 40% of the company's profits came just from the sale of Hawk patent and proprietary rights to foreign nations and companies.3 Raytheon is one of the top arms exporters to nations all over the world.4

Raytheon Sparrow missile protects the Phantom jet.

Raytheon's other principal military systems include the air-to-air Sparrow and Sidewinder missiles, a variety of radar and sonar installations, and the Sam-D missile, which will replace the Hawk.

Raytheon also makes the missile-site radars for the anti-ballistic missile (ABM) Safeguard system, as well as the guidance-and-control systems for the Navy's Poseidon missiles, which have multiple independently-targeted re-entry vehicle (MIRV) warheads. The deployment of these missiles has already begun a new nuclear arms race which may be far more costly and dangerous than anything to date.

THE RAYTHEON - MASSACHUSETTS MILITARY - INDUSTRIAL COMPLEX

Raytheon is the biggest employer and the biggest military producer in Massachusetts, employing in 1969, 31,000 in the greater Boston area alone. In 1970 Raytheon laid off over 5,000 of these employees. The company's total employment fell from over 53,000 to less than 46,000 in 1970.

Raytheon's military sales in Massachusetts alone were $427,000,000 in 1969 prime contract awards. The company's total military sales are never fully known, since some of the sub-contracting is never reported and ends up hidden in commercial sales. Perhaps $500 million is a more realistic minimum for its Massachusetts military business.

The company was the 11th biggest military producer in 1969, although sales slipped some in 1970. From a firm born in Massachusetts on the eve of the Great Depression, the company has become one of the giants, and did it with military contracts.

To really understand how Raytheon is the nexus of the military-industrial web in the state, look at its position in relation to other leading recipients of prime Department of Defense contracts in 1969:[5]

Massachusetts Defense Contracts, 1969	
Raytheon	$427 (in
General Electric	294 millions)
Massachusetts Institute of Technology	101
Avco	66
Radio Corporation of America (RCA)	48
Sanders	35
Sylvania	32
Mitre	29
Chamberlain Manufacturers	27
Harrington & Richardson	26
United Fruit (AMX)	23
Norris Industries	19

(Although General Electric received nearly 3/4 the amount of prime contracts that Raytheon received, its interlocking power relationships are much more at the national than state level. General Electric follows Raytheon as the second largest employer in Massachusetts, and is on a national scale a much larger defense contractor and firm than Raytheon. In 1969 G.E. was the Number Two defense contractor in the United States, second only to Lockheed. In the coming political struggles over economic conversion, G.E. can be figured on for a more rigid and conservative stance than Raytheon. At the state

level, it would be much easier to exert telling pressures for conversion upon Raytheon than General Electric.)

Every military-oriented corporation, when confronted with the demand for conversion from military to civilian production, responds in the same way: "We can't convert unless other military producers convert too, because the costs incurred in the transition period would make us non-competitive." As forces mobilize in Massachusetts to demand the economic conversion of Raytheon, the company's directors will in turn have to demand that other military companies convert also.

It is possible for Raytheon's directors to exercize such leverage because 6 of the company's 11 directors sit on the boards of directors of 6 other leading institutions in Massachusetts, with at least 2 of the 6 men on more than one of the other boards. Such interlocking with other key institutions places Raytheon at the center of the state's commanding elite:

Interlocks of 6 of Raytheon's Directors

First National Bank of Boston
- Charles F. Adams
- Eli Goldston
- Roger C. Damon
- Robert W. Stoddard

Northeastern University
- Charles F. Adams
- Roger C. Damon
- Charles F. Avila
- Thomas L. Phillips

John Hancock Mutual Life Insurance Company
- Charles F. Avila
- Thomas L. Phillips

Boston Edison Company
- Charles F. Avila
- Roger C. Damon

Liberty Mutual Insurance Company
- Charles F. Adams
- Charles F. Avila
- Roger C. Damon

National Shawmut Bank
- Charles F. Avila
- Thomas L. Phillips

Of these men, Charles F. Adams is more than anyone else the father of the company. He still holds the chairmanship and 106,000 shares of common stock. Thomas L. Phillips, President of Raytheon, holds 33,000 shares. Another giant in the state, the State Street Bank and Trust Company, holds a strong interest in Raytheon, with nearly 6% of the company's preferred stock in 1968.[7]

Raytheon director Robert W. Stoddard is also chairman of the board of Wyman-Gordon Company of Worcester, Mass., one of the leading military firms in the state. Wyman-Gordon makes castings and forgings for aircraft engines and airframes for automotive engines. The Stoddard family is the dominant family of Worcester, holding directorships of many local banks and civic and educational institutions. Especially useful in consolidating power is Stoddard's position as chairman of the board of the city's leading newspaper, the Worcester Telegram and Gazette. He has served as a member of the executive committee of the John Birch Society.

The financial power of this interlocking directorate is best demonstrated by detailing the sheer bulk of the financial resources held by the First National Bank of Boston, Its affiliate, the Old Colony Trust Company, and the State Street Bank and Trust Company. Raytheon director Roger C. Damon is chairman of the board of First National and a director of Old Colony.

Approximately 60% of the assets of all institutional investors in the United States are held by commercial banks. Well over a third of that 60% is held by bank trust departments.[8] As of 1968, the Old Colony had 38% ($4.2 billion) of all trust assets in the Boston area. Its affiliate, First National, had 12% ($1.3 billion). Therefore, essentially one banking operation has 50% of all the bank trust business in the area. The State Street Bank holds an additional 14% ($1.6 billion) of the total.[9]

Aside from relying on each other financially, the institutions in this interlock are good customers of each other. For example, Raytheon is Boston Edison's biggest customer; the company is also a big customer of Boston Gas Company, of which Mr. Goldston is an officer and director; First National is the principal depository for the company; Raytheon subcontracts to Wyman-Gordon; and Old Colony is trustee for Ray-

theon's pension plan.[10]

John Hancock Mutual Life Insurance Company and the National Shawmut Bank of Boston could be added to the inner circle of the Raytheon family of institutions,since Charles F. Avila and Thomas L. Phillips are directors of both companies.

The name of Gerald H. Westby could be considered as well, since he owns or controls personally 77,000 shares of preferred stock and 4,400 shares of common stock in Raytheon and is a member of the board. Mr. Westby's preferred shares comprise 6% of all of the company's preferred stock. He does not share in any of the other interlocking directorates. This stock and his board seat were his price for the sale of his Heath de Rochemont publishing house (now D.C. Heath) to Raytheon in 1966.

Taken together, the directors of Raytheon own only 1.1% of the company's common stock. Another 7.6% of the common stock is held in the portfolios of the 7 leading mutual funds groups based in Boston. These dominant mutual funds groups are by far the largest direct institutional investors in corporate securities in the area, although a good deal of the funds they manage come from other institutions.

The largest block of Raytheon stock held by these funds is in the Massachusetts Investors Group, which holds 402,000 shares of common stock. The second largest block is 380,000 shares held by the Puritan-Fidelity Group.[11]

In a truly democratic society, people would have significant opportunity to take part in the economic decisions that profoundly effect their lives, such as the investment decisions of institutional investors: the commercial banks, insurance companies, and mutual funds. The people who put their money in these institutions not only have very little to say about what is done with it, but aren't even allowed to know after the fact (with the exception of mutual funds).

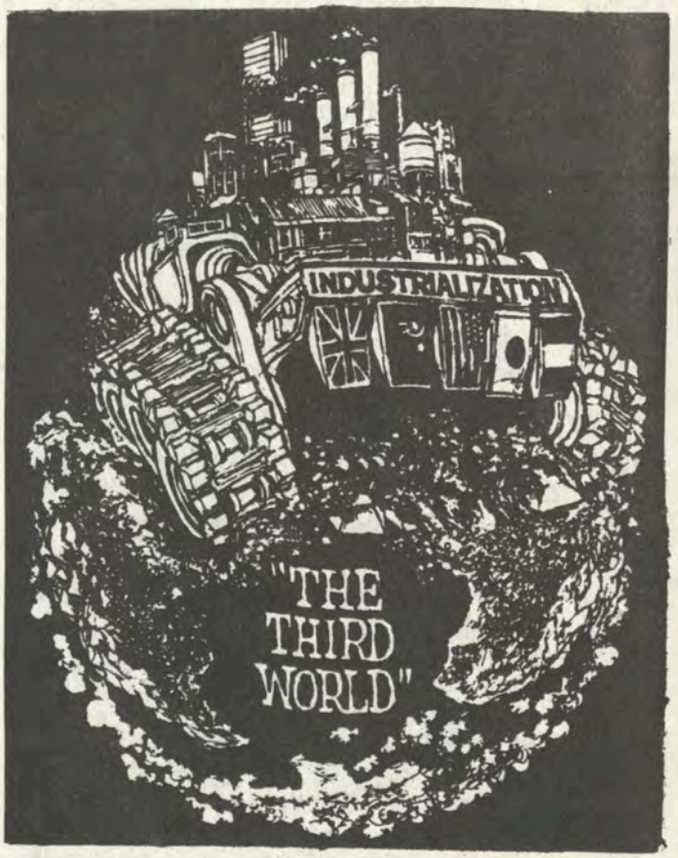
Citizens and groups who feel responsible for the goods produced in their community, or company, or state have a right to know what people and what institutions comprise Raytheon's investors.

WHAT IS ECONOMIC CONVERSION ?

Although our primary purpose here is simply to provide information about Raytheon, it is our hope that this information will serve in part to stimulate individuals and groups to become involved in pressuring and helping Raytheon to convert a substantial percentage of its military production into the production of goods and services designed to meet real social and human needs both here at home and in developing nations abroad. Indeed, it seems to us that the facts we are presenting about the company become fully significant only when placed in the context of economic conversion.

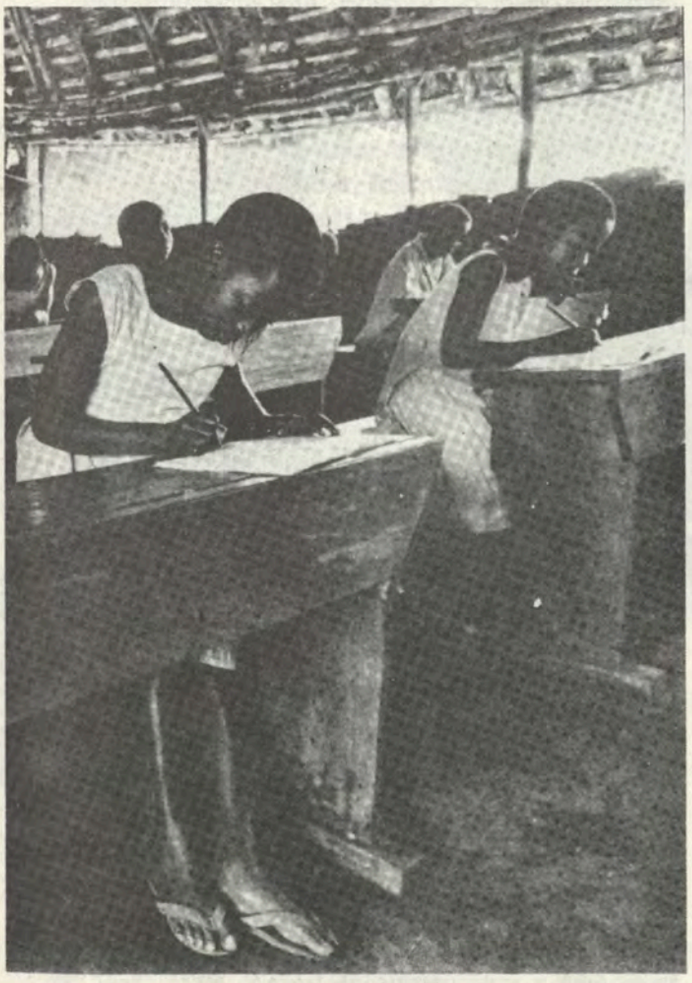
Economic conversion most simply means the changing from one type of economic activity to another: from making shoes to making light bulbs, from making heart machines to providing minimal community health care clinics, or from making missiles to making pollution monitoring and control equipment. In broader terms we are concerned with conversion from a high-technology war economy to a slightly lower-technology peacetime economy.

The almost total reliance of the military-industrial complex on high-technology has led to a warfare strategy in which machines that cannot distinguish friend from foe do our fighting for us.



R.C. Cobb Georgia Straight January 13, 1971

The net effect, in countries in which we are engaged militarily, is to turn most of the population against us, ensuring political defeat in the long run. The same overdependence upon technology has adversely affected our foreign policy as expressed through both public and private investment. We want to produce and sell in underdeveloped countries capital-intensive advanced industrial and consumer goods, when what is needed more often is labor-intensive, lower-technology goods to meet the needs of the vast majority of people living in a subsistance economy. We too often ask nations to ignore their most abundant resource, people, in favor of our most abundant resource, capital. When the need for school teachers, schools, and community clinics is enormous, we pressure regimes into pouring all of their resources into advanced industrial development. When considerable resources are needed for land reform and assistance to small farmers, we pressure regimes to put all of their agricultural resources into mechanized commercial agriculture.



The first school in an African village

Most of our domestic and foreign problems are deeply related to the war-oriented economic structure of the U.S, that has dominated much of our economic and political life since World War II. Around 70% of the current federal budget is going for defense. We are often informed that the figure is closer to 50%, but this leaves out the military portions of the budgets of the Atomic Energy Commission, the National Aeronautics and Space Administration, and Foreign Aid. Recall for example how $700 million of the 1970 AID Food for Peace Program went for the export of U.S. armaments. In addition, the portion of the CIA budget not buried in the Department of Defense budget must be added to this total. Depending upon the method of calculation, between 15 and 20% of all jobs in the U.S. are directly or indirectly sustained by the war economy.[12]

Our cities are slowly dying, we are not beginning to eliminate poverty, educational capability is continuously declining, and we are heading straight for environmental disaster. None of our needs can be dealt with unless there is a significant rechanneling of economic resources from military production to the production of the socially useful products and services designed to meet human needs.[13]

The profiteering of the monopolistic military producers and the Department of Defense (DOD) has served to concentrate wealth in too few hands and has thereby contributed to the plight of the impoverished by making an unjust distribution of wealth even more lopsided. The waste and inefficiency of these producers have contributed to growing inefficiency in our economy. This inefficiency and war and strategic arms race caused inflation are pricing the U.S. out of foreign markets and making U.S. goods noncompetitive at home.

Tomorrow morning when you get up take a nice deep breath. It'll make you feel rotten.

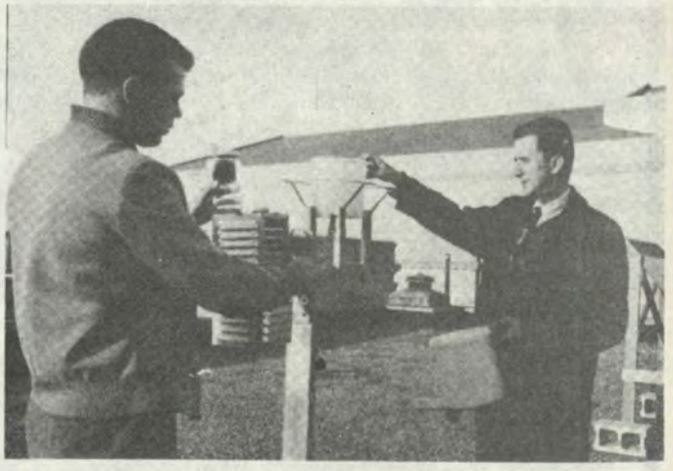
Citizens for Clean Air, Inc.

The undue influence of the military-industrial complex was largely responsible for the war in Indochina in the first place, and for many self-defeating policies that have developed in the war, such as almost total reliance upon high technology in a guerrilla war against the majority of the people. The conflict is far from being resolved and other wars are developing on other continents in which the U.S. is already deeply involved, such as the wars in Portuguese colonial Africa, and in East Bengal.

All of the problems mentioned above have placed the U.S. in a severe long-term economic crunch. The wage-price freeze initiated in August of 1971 has given us a new awareness of the seriousness of the situation we will be facing far into the future. The major intent of the freeze is to protect the profit margin necessary to maintain a high input of technology into manufacturing. The resultant increase in productivity will make our economy more competitive. The problem here is that the investment capital protected will be used to enhance even more the power of military dominated high technology development. The short-run solution of wage-price freeze as it is being used now in the U.S. will make the long-run problems we are concerned with in this pamphlet even worse. These problems will continue to worsen until broadly-based programs demanding economic conversion focus their attention on specific producers and offer specific alternatives rooted in real social and human needs.

The troop withdrawals from the Great Southeast Asian War and the push for the Volunteer Army have given the mistaken impression to many U.S. citizens that the U.S. has already begun a major shift in priorities. In fact, the increase in the air war and the planned upswing in strategic arms spending demonstrate that no major changes are in sight. Conversion is, however entering the political arena via such groups as Common Cause and the National Urban Coalition. The latter organization has just presented a program for federal spending that is largely based upon economic conversion. It is important to note that this is an influential political network operating out of very conservative assumptions.

If the Nixon Administration has its way the defense budget will actually be going up by $6 billion in the next fiscal year. Wall Street, at least, has not missed the point: aerospace stock prices have been going up 3 to 4 times as fast as other industrials.[14] The crisis of Lockheed in 1971 has caused a temporary lul in this phenomenon. As a recent article on conversion by Derek Shearer puts it, "While investors understand that the Nixon Administration has shifted resources, not from military to human resources, but from military manpower to military hardware, liberals in Congress talk gallantly about conversion . . ."[15]



At an air monitoring station atop the Municipal Court Building in St. Louis, two Public Health engineers check lead "candle" which measures sulfur dioxide. (St. Louis Post Dispatch from Black Star)

Let us keep this broader backdrop of economic conversion and all that it implies in mind as we explore in more detail various aspects of Raytheon's activities.

RAYTHEON, VIETNAM, AND THE AIR WAR

It is necessary to discuss in some detail the nature of the new anti-personnel air war and Raytheon's deep involvement in it. The air war has become the central strategic approach to the Great Southeast Asian War and to the smaller wars of liberation in the Portuguese colonies in Africa: Angola, Mozambique, and Guinea Bisseau.

Whenever the U.S. has been frustrated in its use of ground troops and its efforts at political organizing, it has immediately fallen back upon its high-technology weapons systems to 'cleanse' questionable geographical areas. By now, well over half of the entire Indochinese Peninsula has been converted into "free-strike zones" where attempts are made to kill all humans, all large animals, and often all food crops.

In accordance with this strategy, the central developmental thrust of high-technology military producers has become the "electronic battlefield". Free-strike zones are strewn with instruments that see, sniff, and hear humans and large animals. Communications and command systems automatically call out direct air strikes.[16]

VIETNAMIZATION PROGRESS | R. C. Cobb

As the Nixon Administration has been pulling out ground support troops it has been increasing the intensity of the anti-personnel air war. The real U.S. soldiers in the war are found less and less on the battlefield and more and more in the laboratories and on the production lines of high-technology aerospace firms like Raytheon.

Raytheon is playing its part in smaller ways as well in the new developments in the anti-personnel air war. The central development is a new twist to the old "enclave" strategy. Originally, the enclave strategy in Vietnam meant a retreat to many heavily fortified defense and air attack bases near the coast.

Certain percentages of the population in an area that is designated to become a free-strike zone are moved to refugee compounds near strongholds along the coast and in the southern provinces of South Vietnam. Some of those that remain behind in the zones end up fleeing to refugee areas.

By now approximately 1/3 of the entire South Vietnamese population has been forcibly relocated into these enclave regions. It is hoped that the 'secure' southern region can be extended beyond Pnomphen in Cambodia.

PRESIDENT PHILLIPS IS MISLEADING IN DENYING RAYTHEON'S VIETNAM ROLE

Raytheon has devoted considerable energies for some time to promoting a liberal and progressive image for the company. By and large, the effort has been successful. More recently, considerable energies have been devoted to denying any involvement in Vietnam, especially on the part of President Thomas Phillips. During Holy Week in April, 1971, Phillips told a group of 70 demonstrators at Raytheon headquarters, "to my knowledge, none of Raytheon's products are being used in Vietnam." It was knowledge to the contrary, however, that brought the demonstrators, the Co-conspirators for Life, to the company. Phillips was just as blatantly misleading with the stockholders of the company. He told the May, 1971 annual meeting of stockholders, "Virtually none of our government business has any relationship to the conflict in Southeast Asia."[17]

The war has always been largely an air war, and now is predominantly so. The one strategic prerequisite for such a war is control over the air. This control is maintained in large part by Raytheon air-defense missiles, the primary product line of the company. Surface-to-air missiles guard ground installations from hostile aircraft. Only two such systems are deployed, the largest deployment being that of Raytheon's Hawk missile. It is deployed in Vietnam.

Air-to-air missiles are carried by jet fighters, bombers, and bomber escorts in Vietnam. It is estimated that 80% of all air-to-air missiles presently arming U.S. fighter aircraft have been produced by Raytheon, primarily Sparrow and Sidewinder.[18] These missiles are used on B-52 bombers, their jet escorts, and on jets bombing over North Vietnam.

Co-Conspirators for Life questioning President Phillips at Raytheon Headquarters in Lexington, Massachusetts, April, 1971.

In the 1965-66 air war over North Vietnam, when the North Vietnamese Air Force was sending up MIG jets, these Raytheon missiles were used in air combat. Since the North Vietnamese Air Force was rendered ineffective at that time, it has been unable to attack U.S. ground installations from the air. Thus, these missiles have rarely been fired since late 1966, and are often not even carried on missions. They are on hand in huge numbers, however, on the aircraft carriers and in the air force bases all over the Indochinese Peninsula and surrounding areas. If at any time the North Vietnamese should re-activate their Air Force, or other countries should intervene with air support, Raytheon missiles would be used within minutes.

Since these missiles are standard weapons systems for the 7th Fleet, the Air Force, and the Army, and since they have seen little actual use in the war, they do not usually appear in defense procurement budgets specially earmarked for the war.

Radar, Countermeasures, Reconnaissance, Detection, and Air-Strike Control Systems

Raytheon navigational bombing radars guide the B-52's to their targets every day. (The company no longer produces these particular radars.) From sales to the Government of $620 million in 1968, $60 million was included in the specially earmarked Vietnam expenditures. This includes spare parts for Hawk, Sparrow, and Sidewinder. It also includes other spares, components, communications gear, electronic countermeasures devices, and fuses for bombs and shells.[19] Raytheon made $10 million in 1970 producing fuses for bombs and shells, most of which will be used in free-strike zones in Vietnam, Cambodia, and Laos. The Company's night vision devices have been used extensively in Vietnam.[20] All of this procurement is continuing today.

Airborn electronic countermeasures systems are used to foul up the communications gear and radars of enemy aircraft and enemy anti-aircraft missile and artillery sites. Procurement for this equipment does not usually appear in the Vietnam part of the military budget since it is standard equipment on combat aircraft. But its use in the war is crucial and continuous in attacks against and defense from missile and artillery sites.

Reconnaissance systems are one of the central elements of the air war since they search out the targets for air attacks. Raytheon's sale of countermeasures equipment and reconnaissance systems is still relatively small, amounting to $40 million

annually. However, now that the anti-personnel air war dominates our combat activities, these sales are increasing at the phenomenal rate of 20% annually.[21]

In the "electronic battlefield" the devices which detect the presence of humans and large animals communicate their finds to computerized command and control centers which automatically find out what aircraft are available, order the missions, and guide the aircraft to targets. Raytheon hopes to be heavily involved in this most indiscriminate and therefore genocidal warfare system. The company also has a development contract with the Air Force to deliver prototype TPN-19 tactical air traffic control and ground approach systems. If accepted, the initial contract would be for $200 million, with many times that amount to come if production begins on schedule in 1972.

With the air war moving into central stage in the war against the liberation armies in the Portuguese colonies in Southern Africa, in the warfare strategies in the Middle East, and elsewhere, Raytheon hopes to sell this electronic battlefield system to many countries.[22]

Raytheon's "relationship"--to use President Phillips' term--to the war in Southeast Asia is very extensive and growing rapidly. The management of the company is doing a disservice to the people of Massachusetts and its employees by concealing all of this. And we believe that Raytheon management should not be permitted to treat the company's stockholders to such misleading information.

President Phillips misinformed these stockholders at the 1971 annual meeting.

RAYTHEON AND THE NUCLEAR ARMS RACE

Raytheon is banking for its future growth on a new strategic arms race. Its contracts for the missile site radars for the ABM (anti-ballistic missile) and for guidance and control systems for the Poseidon MIRV (multiple independently targeted reentry vehicle) make Raytheon one of the principal beneficiaries of strategic arms spending. These armaments unfortunately revive the possibility that the United States could develop a first strike nuclear capability over the Soviet Union. That this is a national strategy is made clear in the Air Force Manual on Basic Doctrine, which states that "our force posture and general war plans must consider the requirement for both first and second strike operations."[23]

The possibility that the United States, already significantly ahead in guidance and control technology, is anticipating surviving a nuclear war that it starts itself, may have already set off a new and far more costly nuclear arms race than anything we have seen hitherto.

Senator Brooke of Massachusetts testified before a Senate subcommittee last year that "if we deploy a MIRV and combine it with an expansion of our ABM system to protect U.S. citizens, then it seems to me that it would make it rather clear at least to the Soviet Union that we want a first strike capability."[24]

The submarine James Madison set sail April 1, 1971 armed with 16 Poseidon missiles, each one carrying 10 MIRVed warheads.[25] Thus the multimillion dollar Poseidon guidance and control work Raytheon is doing in Sudbury, Mass., has begun to be deployed. Raytheon has built all the guidance electronics for Polaris/Poseidon since its inception in 1959. This is the company's largest single commitment in strategic missiles, currently netting $50 million a year.[26]

Raytheon is expected to supply all of the guidance electronics to the follow-on program, ULMS, a more sophisticated and longer range submarine-launched intercontinental missile. 1971 marks the beginning of the program, and Raytheon's initial contract is for $10 million. If the taxpayers of the U.S. allow this program to continue it will cost them many billions of dollars. Raytheon's share will be $50 million a year by 1975.[27]

Since our anti-ballistic missile technology and deployed hardware are also already more advanced than the Soviet Union's, the continuing deployment of the Safeguard ABM is a major escalation of the arms race that will force other countries to waste their resources on the development of such

One of Raytheon's many facilities in the state, the Wayland plant.

systems. Raytheon is getting $70 million this year for the program's missile site radars and will get $100 million a year for the next several years unless popular pressures force cutbacks in system deployment.[28]

The Poseidon work is done in Sudbury, Massachusetts, and provides the backbone for Raytheon's facility there, which is Sudbury's biggest economic operation and employer. While there are many citizens of the area who are critical of the war and of the nuclear arms race, they rarely take their criticisms directly to the company. They often find it more convenient to believe that the problem lies only in Washington, or anywhere else than Sudbury itself.

Some Sudbury people have begun to take responsibility for the ultimate consequences of the way in which Raytheon uses their community's resources. The Sudbury Economic Conversion Group has held a series of forums and has begun distributing informational leaflets to the employees of the plant. We believe that their activities are exemplary and encourage people in other Raytheon communities to follow their example.

RAYTHEON, THE B-1A, AND THE SST

One significant guage of the status of the SST, (super-sonic transport) ostensibly killed by congressional action in March, 1971, will be the status of the B-1A, the advanced manned bomber. In 1970, Raytheon won the research and development work for the avionics equipment on the aircraft, which includes radar, electronic countermeasures systems, and other navigational apparatus.[29] Since the airframe, the technology, and the engines being developed for the B-1A are similar to those that were being developed for the SST, the development of either would make the development of the other less expensive and thus more attractive.

When the B-70, the first attempt at the big supersonic bomber to replace the B-52, was killed in 1962, the name was changed to the B-1A and another program was begun. At the same time the military and civilian backers of the plane began pushing the SST. When the pressure against the SST mounted in 1970, the B-1A received its first sizeable development appropriation of $100 million.[30] The Department of Defense is requesting $370 million for the B-1A in 1972.

Each B-52 cost $8 million; each B-1A may cost up to $80 million. Senator William Proxmire estimates that the program, if completed, would cost $25 billion.[31] Continued advancement in missiles makes the advanced bomber of dubious value as a strategic nuclear attack vehicle because of its vulnerability and slow speed compared to a missile. Its value seems to lie in its effectiveness as an anti-personnel bomber, its ability to keep a back door open for the SST, and its ability to funnel substantial amounts of money in the direction of the aerospace firms that would produce it.

THE HAWK AND THE SAM-D

The Hawk missile deserves special mention since it has provided Raytheon far more revenue than anything else in the company's history. Raytheon became involved in the development of the missile in the early 1950's. President Phillips' rise to power in the company stems from his work on the missile and his subsequent service as head of

the Missile Systems Division. The Hawk is one of the few high volume production missiles ever built and is the largest industrial production program ever undertaken in Massachusetts, including in commercial industry.

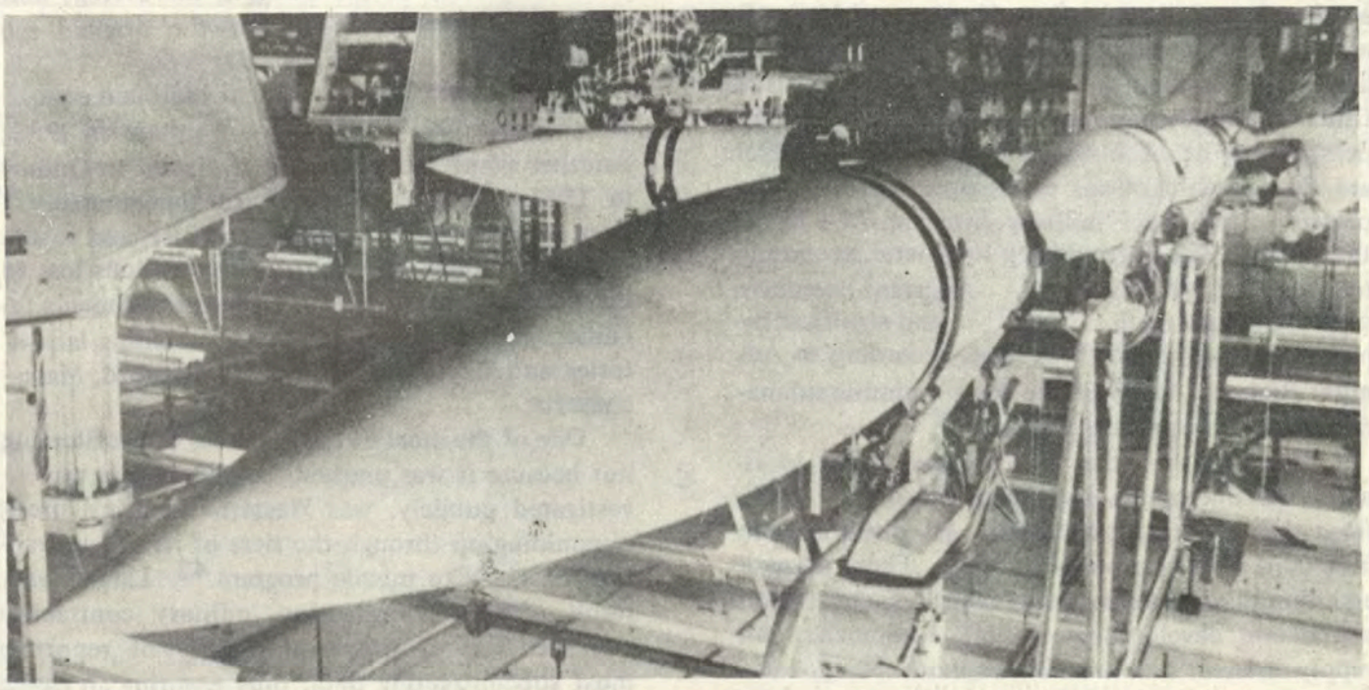
As far back as 1961 dozens of batteries of Hawks were on station in Germany, Panama, and islands around Okinawa. In 1962 Italy, France Belgium, and Holland joined in, bringing NATO Hawk forces up to 22 battalions. The company sold lucrative production licenses to several European countries and began production of Hawk in its 45% owned affiliate, Silenia, of Italy. Hawk played a key role in the rearmament of Japan, and that country has been producing the missile for years. The production of the Hawk and of Western Electric's (ATT) Nike Hercules, has been responsible for the bulk of Japan's missile development capabilities. If Japan begins producing nuclear missiles in the next few years it will be based upon the previous production of these missiles.

Raytheon has made substantial sales of Hawks in the Middle East as well. In the April 5, 1971 Boston Evening Globe, Charles Adams, chairman of Raytheon's board of directors, calls for an increased military budget. He states,"Confrontation between the United States and the Soviet Union unhappily exists, and the United States must keep on some sort of equivalent level. . . . If there were a real confrontation between the U.S.–which is a friend of Israel–and the Soviet Union as an ally of the Arab nations, the Soviets could stop the flow of supplies to Israel in the Middle East and the United States fleet would face ignominious withdrawal from the Mediterranean . . . . We must make a significant effort to step up the development of future systems to protect us from an overt act on their part."

Mr. Adams did not mention, however, that Raytheon sells missiles to Arab States as well as to Israel. Raytheon began selling Hawk missiles to Saudi Arabia in 1965, and continued delivering the missiles in 1968, over a year after the 7 day Arab-Israeli War. Raytheon also sold Hawk missiles to Jordan, continuing deliveries right up to the 1967 war. Raytheon's Sparrow and Sidewinder missiles also arm Jordanian jets, and have been used in air battles against Israeli planes. Deliveries of these missiles to Jordan were resumed in 1968.[32]

The congressional committee chaired by Senator William Proxmire (Subcommittee on Economy in Government) urged the GAO to study the feasibility of incorporating the should-cost method into its audits. The GAO found the method useful and applied it in 1970 to a review of the Hawk. The study uncovered enormous waste in Raytheon production, adding up to 30% inefficiency.[34]

Raytheon indulges in profiteering abroad as well as at home. SETEL, a multinational consortium set up by the various European firms involved in Hawk production, had to pay Raytheon



Hawk radome production at Raytheon's Andover plant.

for patent and proprietary rights in 1960 alone $6,720,000. $5 million of this was left to Raytheon as profit after taxes, 44% of the company's after tax profits that year.[35] Even if the U.S. government wanted to make special production arrangements for Raytheon's missiles in foreign countries, it would have to bow to Raytheon's terms. As long as it gives away patent rights to the company, the Government cannot control the prices set by Raytheon.

As if all of this weren't enough, it may all be repeated again in the 1970's. The Hawk and the Nike Hercules are the only surface-to-air missiles currently deployed. Improved Hawk is scheduled to go into production in 1972. Both improved Hawk and Nike Hercules will be replaced by a single missile, Raytheon's Sam-D, with production beginning in 1975 and running through 1980.[36] The principal production facility for Hawk is in Andover, Massachusetts.

For an overall glance at the company's missile revenues, the table on the following page is useful. The only system in the table that we have not previously mentioned is the Tartar-Aegis series. They

These are prototypes of self-propelled Sam-D missile systems, which are still in the development stage.

are launched from surface ships. In addition to the variety of military work already mentioned, the company has done a large volume of sonar work for Navy Submarine and surface ship programs, and will continue to do so.

Raytheon's Excessive Military Profits

Raytheon's profits from its military production follow the pattern of the large defense producers. Profits in these firms are lower than the average large industrial firm if measured by profit as a percent of total sales. But Raytheon's profits are far higher than the average for large industrial firms when measured as a percentage of stockholders equity or of investment by the firm, which are the standard means of measuring profit. The profits of the large military firm are 75% higher than the average for industry in general, according to Murray L. Weidenbaum, Assistant Secretary of the Treasury of the U.S.;[37] and significantly higher, but not so high as that, according to Admiral Rickover, head of the Navy's atomic submarine nuclear propulsion program.[38]

Raytheon uses the citizens' tax dollar to finance its operations and keeps all of the profit from that investment for itself. All of this is quite in accord with government policy. These taxpayers' monies are used to build factories, pay for research and development, supply equipment, and supply interest free working capital. The government then gives away all patent rights on systems developed at the public expense.[39] In addition, according to Charles L. Schultze, past Director of the U.S. Bureau of the Budget, "the average unit cost of missiles is 3.2 times the original estimates."[40]

For example, the government built and equipped a plant for Raytheon in Waltham in 1952. Another plant was built and equipped in Quincy in 1951, all free of charge to the company.[41] Even when such plants are eventually sold to the companies, they are sold at a tremendous loss to the government. In 1970 8.8% of Raytheon's facilities were government owned, including laboratories and flight test facilities in Bedford, Massachusetts.

One of the most notorious cases of profiteering, not because it was unusual, but because it was investigated publicly, was Western Electric's profit pyramiding up through the tiers of its subcontractors on its Nike missile program.[42] Largely as a result of that investigation, military contractors were relieved of the responsibility of reporting most subcontracting data; thus ensuring an easier time in the future in concealing excessive profits.

Table I

ESTIMATED ANNUAL SALES OF RAYTHEON'S MAJOR MISSILE PROGRAMS

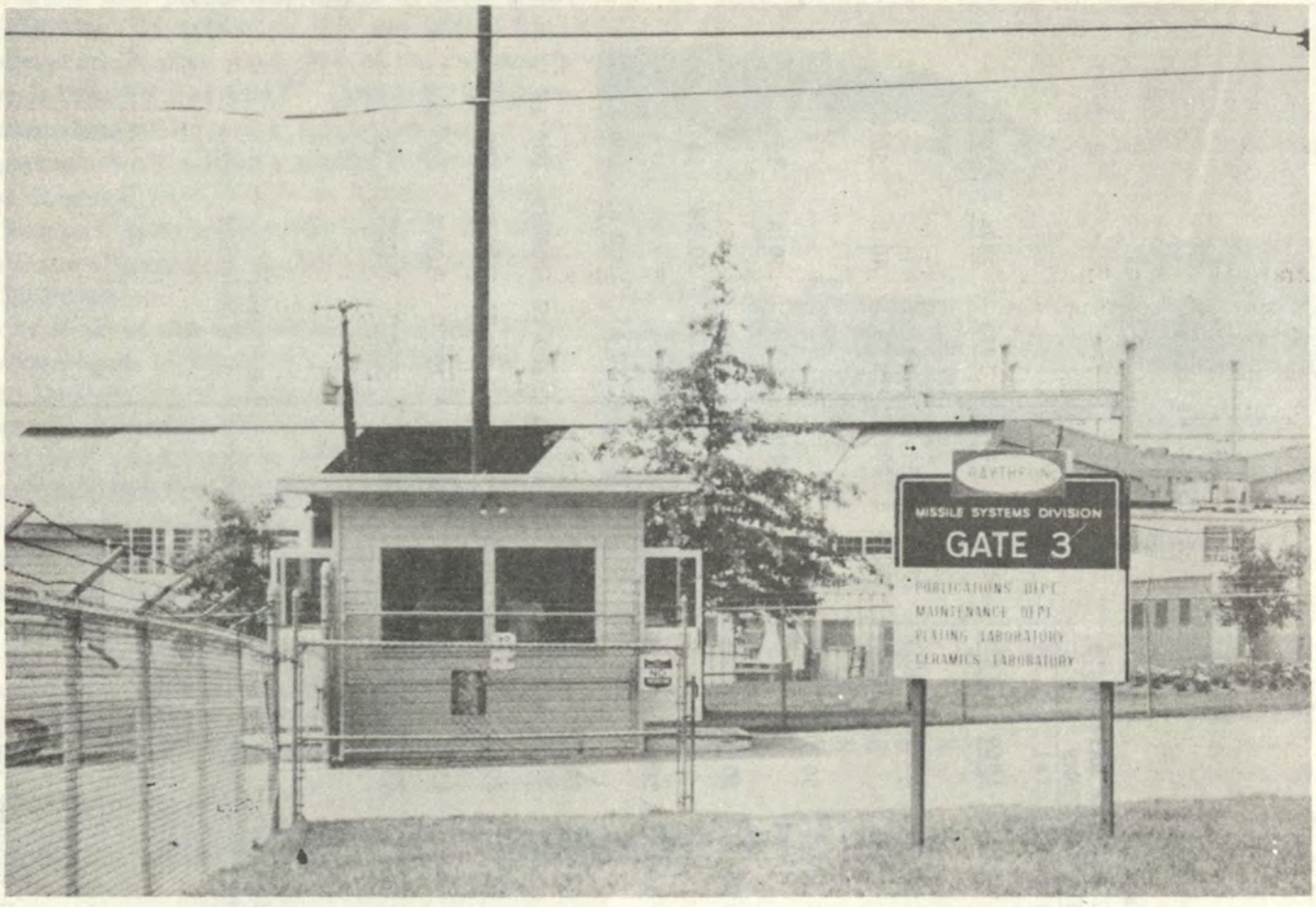
(millions of dollars)

1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
10 P	30 P	50 P	50 P	25 P	25 P	25 P 10 PO	30 PO	50 PO	50 PO	50 PO 10 U	30 PO 20 U	10 PO 30 U	40 U	50 U
50 T	50 T	50 T	50 T	50 T	50 T	50 T	50 IT	50 IT	50 IT	50 IT 20 A	30 A	50 A	50 A	50 A
					15 SI	20 SI	25 SI	30 SI	25 SI	20 SS	40 SS	50 SS	50 SS	50 SS
100 S	100 S	100 S	100 S	100 S	100 S	100 S	100 S	100 S	60 S 10 AS	20 S 20 AS	50 AS	80 AS	100 AS	100 AS
100 H	100 H	100 H	100 H	100 H	120 H	130 H	120 H	100 H 20 IH	40 H 30 IH	30 H 40 IH	20 H 80 IH	100 IH	100 IH	100 IH
							10 SD	20 SD	30 SD	40 SD	60 SD	80 SD	100 SD	100 SD
							45 G	45 G	45 G	70 G	100 G	100 G	100 G	100 G
265	280	300	300	275	310	335	380	430	340	370	420	500	540	550

Legend:

P - Polaris
PO - Poseidon
U - ULMS
T - Tartar
IT - Improved Tartar
A - Aegis
SD - SAM - D
G - Safeguard
SI - Sidewinder
SS - Super Sidewinder
S - Sparrow
AS - Advanced Sparrow
H - Hawk
IH - Improved Hawk

Source: W. E. Hutton & Co., "Field Report on Raytheon Company," p. 16, February, 1971.



Bedford Missile Systems Division (Connie Paige)

Western Electric is now prime contractor for the ABM, the biggest single procurement program in existence at the present time. Raytheon is one of the principal subcontractors, and the cost overruns in just the first year of the program have doubled the cost of initial deployment from $5 billion to $10 billion.[43] The Comptroller General of the U. S. has reported several incidents of totally unjustified Raytheon cost overruns. Some examples follow: Raytheon charged the same cost items on electron tube production to two different contracts("Report on Prices for Electron Tubes under Navy Contract with Raytheon," Comptroller General of the U.S., December 29,1961). Raytheon refused to furnish price breakdowns on electron tubes and later volunteered a refund under pressure of an investigation ("Report on Purchase of Electron Tubes from Raytheon by Sandia Corporation and Bendix Corporation under AEC Contracts" Comptroller General, March 29, 1962). The Army threw out over $1 million worth of Hawk parts while ordering an equivalent quantity of identical parts. This was done consciously ("Report on Unnecessary Disposal of Spare Components Produced for the Hawk Air Defense Program," Comptroller General, October 12, 1964). And, as mentioned above, when the GAO studied Hawk production facilities and practices in 1970, 30% inefficiency was discovered.

What all of this adds up to is an enormous subsidy to Raytheon paid by the taxpayer. The vast majority of the investment is made by the citizen, and the company gets all of the profit and the patent rights to boot. That is probably the main reason why Raytheon is not interested in economic conversion from military to civilian production.Being a big weapons manufacturer is just too profitable as long as the government contracts keep rolling in.

HIGH INVESTMENT IN AEROSPACE OPERATIONS LIKE RAYTHEON'S IS BUYING LESS AND LESS NATIONAL SECURITY AT INCREASING COSTS

Denis Healy, Defense Minister in the last British Labor Government says that "nearly all America's greatest errors in the conduct of the Vietnam War have sprung from a gross exaggeration of the strategic and political effectiveness of air power. In spite of dropping many times over the amount of bombs dropped on Germany in World War II, the Air Force has reduced the volume of supplies reaching the Communists by only 20%. But in so doing it has made tens of thousands of recruits for the Vietcong and millions of enemies for the United States." 45

Since the high-technology aerospace sector is the biggest and most profitable sector of the military-industrial complex, it has enormous policy determining influence on the development of warfare strategy. Our political economy supports this powerful lobby, of which Raytheon is a significant element, in channelling resources into jets, missiles, helicopters, and anti-personnel weapons. So instead of putting some sensibly balanced proportion of our resources into human and social development– the only way we could hope to make significant political gains in the Indochinese Peninsula – we put our resources into high-kill anti-personnel weapons systems for the new air war. These weapons cannot tell friend, or potential friend, from foe. Attacking people as if they were enemies is the most effective way to turn them into enemies. The evidence is mounting up very fast that the kind of military contracts Raytheon and its backers lobby for have the end result in Vietnam of producing less and less national security and higher and higher cost.

The more we rely on the kind of high technoloweaponry Raytheon wants to sell, the more we are forced into a warfare strategy that results in indis–criminate anti-personnel attacks leading often to genocide.

RAYTHEON DECIDED TO LAY OFF PRODUCTION WORKERS AND ENGINEERS INSTEAD OF INVESTING IN RESEARCH AND DEVELOPMENT FOR CONVERSION

Many military companies have made some effort to hold onto employees until the economic slowdown and minimal declines in defense spending forced them to cut back their work force. Raytheon chose a more stringent approach. Priority was given to keeping profits and dividends high. The company began reducing its work force gradually before they were forced to do so. In a little over the past year, the firm has cut its 55,000 work force by nearly 8,000, or 15%. Most of the layoffs have occurred around Boston. 46

But these severe cut-backs were not forced by a profit squeeze. "Many aerospace companies have recently announced or said they anticipated losses or significant profit declines for the past year," the Wall Street Journal reports. "For a major defense concern, however, Raytheon performed unusually well, if not uniquely so." 47 1970 profits of $34.3 million were only down $1 million from 1969. Raytheon is banking a lot of its chips on the bet that the economy in general and military spending in particular are going to be moving up firmly and soon.

Aside from the fact that an escalation in military spending now is one of the worst things that could happen to our economy and our society in the long run, Raytheon is probably going to miss its bet. Unfortunately, the scope of this pamphlet does not allow for an analysis of the economic situation of the U.S. It is the opinion of this author that the economy cannot support the kind of military spending that Raytheon is counting on in the years ahead. Even though strategic military spending is going to go up a bit, and Southeast Asian War spending is not going to go down the way the official administration line would have us believe; the U.S. economy cannot withstand either a strong or prolonged rise in military spending.

In spite of reductions in the expenditures of military personnel abroad, foreign military expenditures will remain fairly high. This is partially due to the ever increasing amounts of arms sales to

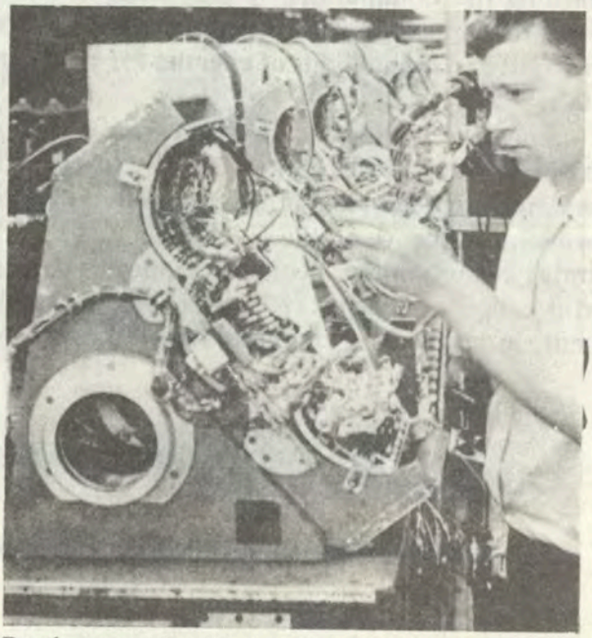
foreign governments, and to the ever increasing scale of our foreign police training programs, even though the latter do not appear in the military budget. Since we supply virtually all of the military aid to the Pakistani government, this program alone promises to become a considerable drain on our resources in the next few years. The war between the somewhat developed West Pakistan and the impoverished East Bengal promises to be a rather prolonged one, and we are already deeply committed to the West in what promises to be the most genocidal struggle of the modern world. The effects of this continuing foreign expenditure will be a continuation of many of the inflationary and international monetary problems that have plagued us so in the past decade.

The wage-price controls that may be with us for some time to come, will limit inflation and improve our position in international commerce. This approach will make it even more impossible to deal with domestic problems of poverty and the global problem of environment that threatens the entire human race. Once again we come full circle back to the impossibility of meeting real social and human needs with the production of military hardware. Wage-price controls will make it possible for our economy to withstand a few more years of high military expenditures than would otherwise be the case, providing that the people are willing to pay the cost out of their own pockets.

But apart from all that, there are many indications that the economic slowdown is more than a conventional recession. Even an artificially stimulated semblance of recovery for the coming elections will not hide the fact of continuing structural economic crisis. What will bolster our economy is significant economic conversion from military to civilian production designed to meet the human and social needs of our society and of developing societies abroad.

Raytheon has the opportunity now to invest some of its strong financial resources in pioneering work on research and development for economic conversion. With minimal state and/or federal assistance, well over 1000 jobs could be created in the process. But the company has lost sight of the forest for the trees and it remains for production workers, engineers, and a variety of community groups to formulate demands and strategies for conversion.

We believe that production workers, secretaries, engineers, and middle managers in military work have the right to demand some opportunities in conversion work. When defense contracts are nearing completion, workers and engineers should be given the opportunity of choosing among phasing into: (1) another military production program, (2) beginning research and development work on economic conversion programs, (3) financially supported short-term education oriented toward conversion work and emphasizing social criteria for economic activity, or (4) retraining programs.



Raytheon production workers should be given the opportunity to phase out of military work at the end of production runs into work on economic conversion .

In instances where a firm fails to provide these alternatives, the individual laid off would receive most of her or his salary for up to one year, or until these alternatives are provided. These suggestions and a variety of others should be discussed freely and evaluated by people working for Raytheon. Where mutual support would be helpful, these people in the company should increasingly enter into dialogue with individuals and groups outside of the company. In some instances Government assistance for conversion programs would be appropriate, but the bulk of investment in the coming years should by supported by the companies themselves. After all, Raytheon invests a good deal of its profits in research and development for new military programs.

THE DIVERSIFICATION PROGRAM

For some time Raytheon has been acquiring other firms, such as the Matchlett Laboratories purchased from the Massachusetts Institute of Technology in 1959. These previous acquisitions were in the military field and placed Raytheon in the elite club of military producers : the holders of prime contracts for the production of entire major weapons systems.

1963 brought a fairly short-lived cloud of gloom to the company. The U.S. economy was beginning to experience by then two of the most important factors in its present economic crisis: the glut of American overconsumption and the rise of foreign competition. By 1963 many electrical markets were glutted, and Japan had honed its electronics industry to the point where it was biting off big chunks of U.S. markets. Raytheon sold several production units and government business fell considerably in 1964.

It was at this time that Raytheon launched upon its diversification campaign to acquire non-military companies and thereby lessen its almost exclusive dependence on military contracts. But in this trying time Raytheon still had lots of money and a good long-term future. Everybody felt certain that the cold war would continue for a while. Despite sales declines, profits improved. Although government sales declined, backlogs were up.[48] The company re-entered the computer business with the acquisition of the Computer Division of Packard-Bell Electronics Corp. and of an advanced computer-memory business from the Philco Corp. Also acquired were Micro State Electronics Corp., which made solid state microwave components, and Penta Laboratories, Inc., producers of beam-tetrode and pentode transmitting tubes.

All of this made 1964 quite a year, but that was nothing compared to 1965. From 1965 to 1969 Raytheon bought up companies in three major areas: natural resources, major appliances, and education.

Three of these firms are in the natural resources field, and accounted for just over $300 million of Raytheon sales in 1970. The Badger Co. designs, engineers, and constructs large petroleum and petrochemical plants in both the U.S. and abroad. Seismograph Services provides worldwide geophysical exploration activities. United Engineers and Constructors is the largest service organization specializing in the design of conventional and nuclear generating stations.

In the field of major appliances, Amana Refrigeration produces high-priced refrigerators, freezers and air conditioners. Since its acquisition in 1965 it has begun manufacturing a microwave oven (possibly a health hazard) and a mini-furnace for central heating and air conditioning. These products are spin-offs from military technology. Another acquisition, Caloric Corp., is a manufacturer of gas ranges. These subsidiaries had 1970 sales of $120 million.

Amana Refrigeration was acquired in 1965 and has become one of Raytheon's more successful commercial operations.

In education, D.C. Heath & Co. textbook publishers were acquired in 1966. Three small educational equipment companies were acquired in 1965, with total sales of $10 million. In 1970 some educational assets were sold and Caedmon Records, Gregg International, and a 10% interest in Atheneum Publishing were acquired. The education group had $35 million in sales in 1970.[49]

The table on the following page shows the value of Raytheon's most important acquisitions in recent years.

Table II

ACQUISITIONS 1965-1969

Year	Company Acquired	Area of Activity	Volume (mil)	Net Income (mil)	Number of Shares[1]	Estimated[2] Value of Transaction (mil)
1965	Amana Refrigeration	Major Appliances	$ 25.0	$ 3.20E	447,300	$ 6.9
1965	Edex Corporation	Education	3.0E	.25E	114,100	1.7
1965	Dage - Bell	Education	4.0E	.30E	161,500	2.5
1965	Macalaster Scientific	Education	3.0E	.25E	115,000	1.8
1966	D. C. Heath & Co.	Education	18.4	1.80	948,500	$22.0
1966	Seismograph Service	Natural Resources	28.2	1.70	237,600	5.6
					792,000 pfd.[3]	20.0
1967	Caloric Corporation	Major Appliances	30.3	.70	250,000	$10.2
1967	The Badger Company	Natural Resources	170.0E	4.00E	668,700	29.0
1968	Gulf Design	Natural Resources	2.0E	-	79,200	$3.4
1969	P. E. D., Inc.	Natural Resources	4.0E	.15E	8,600	.4
1969	United Engineers	Natural Resources	39.0	1.20E	500,000 pfd.[3]	$12.5

1. In most cases, long term debt or other liabilities were assumed, and no value has been assigned to that portion of the transaction.

2. Estimated value of the transaction is the mean price at which Raytheon stock sold during the year of acquisition.

3. Preferred stock is $1.12 convertible share for share into common.

Soruce: W.E. Hutton & Co., "Field Report on Raytheon Company," p. 4, February, 1971.

Raytheon Opposes Conversion

Diversification is not conversion

Raytheon's diversification in no way signifies any conversion out of military production into the production of more socially useful goods and services. However, the company's solid entrance into the civilian market has given it the skills and structure of a market oriented firm and has radically lessened the firm's dependence upon military sales for survival. Thus, Raytheon enjoys a flexibility that would make conversion easier than for some other defense contractors.

The diversification did not generate a great deal of economic activity, since it merely took over control of already existing civilian enterprises in civilian markets. Most all of the company's military work was done in Massachusetts before the diversification, as is the case today. Most of the civilian work that has been picked up is in other states.

The diversification coincided with a policy which opposed conversion from military to civilian production. In 1964, Charles F. Adams, chairman of the board, told a Rotary Club audience: "We have no intention of converting. We intend to continue as a defense contractor as long as there is a need . . ."50

President Phillips confirmed this stance when he told the Co-conspirators for Life in April of 1971 that, "Raytheon would continue to do military work to the extent that the Government thought necessary." He added that the company "would probably not undertake efforts to reduce its military production."

Raytheon has made no meaningful studies of the possibilities open to it in conversion from military to civilian production. It is best at making money off of high-technology military hardware, and there just aren't enough civilian markets that demand large-scale, high-technology operations. To convert substantially into production of goods and services designed to meet the real social and human needs would demand quite a sacrifice in terms of high technology.

In the area of commercial electronic components and equipment Raytheon has succeeded in developing significant commercial business by adopting military hardware and technology to commercial markets. These products include a broad line of tubes and semiconductor devices, computers, microwave devices, data displays, multiplexers and other items. Company microwave communications systems, and reservation and inventory systems for airlines are also part of this product line, the sales of which totalled $125 in 1970. Like the company's acquired businesses, this production is not economic conversion. Commercial business has been spun-off of military business, but no military business has been converted.

One of the most common arguments heard from the defense industry in the face of criticisms from conversion advocates is that these firms would love to move into commercial fields if only the market were there. Raytheon, like other military producers, has invested some resources in looking for commercial applications for its technology. For example, the company has sunk millions in research and development into the extraction of the oceans' natural resources.

The problem is that new markets do not just appear. In the economy of over-consumption, markets are artificially created. Many leading firms spend from 10% to up to 20% of their after-tax profits on advertising to create these markets. Furthermore, all government markets are manipulated. The key decisions about what goods and services are to be produced are not made by consumers but by the top-level managers and owners of the largest industrial and financial institutions.

The statement, "We would love to convert if only the markets were there," is a particularly insidious statement coming from people in a firm like Raytheon, which spends enormous sums dreaming up proposals for future weapons systems. In addition, the company has its own lobbyists in Washington fishing for more military contracts. Coupled with the military's own army of public relations men and lobbyists, the effect is direct opposition to conversion.

Because of over-consumption, inflation, and the demands of developing nations for a greater share of the world's resources, unlimited growth is no longer an option for the U.S. economy, and the rapidly increasing danger of enviromental disaster by itself indicates that we must convert our technology.

The resources of the U.S. are finite, and markets for conversion will not be created until substantial resources are withdrawn from military production and invested in other things. Raytheon and others are trying to see to it that these resources stay locked up in excessively profitable military production. While lobbying for increased military spending Raytheon publicly pretends that its diversification is actually conversion. It is not; they are distinct phenomena. Once again the people of Massachusetts are called upon to demand that Raytheon stop projecting this false image of itself.

RAYTHEON AS EDUCATOR: NORTHEASTERN UNIVERSITY

Raytheon's first push into the education business was training programs for Navy missilemen, and the company's interest in publishing came from the large numbers of technical manuals it had to prepare for the military.

The commanding position Raytheon board members hold in Northeastern University was an important factor in their decision to enter the education field. If you will remember, four of Raytheon's board members are also members of the board of Northeastern.

Members of Raytheon's board also sit on the boards of the Industrial School for Crippled Children, Boston College, Worcester Polytechnic Institute, Worcester Academy, and the University of Tulsa. Take director Harvey Brooks, for example; he is Dean of Engineering and Applied Physics at Harvard University. Most of the other directors have several commanding positions in educational institutions.

With these ties they can be assured of a testing ground and the beginnings of a market for new products in educational television, teaching machines, textbooks and many other educational products. Thus, the military producer and war maker that makes missiles fly straight and true wants to see if it can get human minds to do the same.

Northeastern University in particular serves these trustees' interests. The work-study alternating semester system of the university allows students to work for Raytheon and other institutions represented by the trustees. The work is often for lower wages than other workers get for equivalent work. This system also grooms students for careers with the controlling companies. Many are the cars in Raytheon parking lots with Northeastern stickers on their windows.

We believe that the origins of the company's educational work in teaching the use and maintenance of weapons systems does not make the firm as it is presently functioning a qualified power center for the decisions that run Northeastern. The company's opposition to conversion means that it cannot support programs teaching students to deal realistically with problems of poverty environment, racism and neocolonialism.

We urge students, faculty, administrators, and other service personnel at Northeastern who are concerned with the principal problems facing the state, nation, and the world to critically reexamine the university's relationship to the company, and to execute whatever demands and actions that follow from such a reexamination.

CONVERT RAYTHEON

The Massachusetts Economic Conversion Coalition is engaged in examining the economic structure of the state and encouraging and assisting the formation of local and state-level groups for conversion.

The Labor Information Project has been studying the relationship of the working man in the state to the structure of the economy and to the social needs of the state.

The Co-conspiritors for Life came together for the first time shortly before Holy Week to seek a way to express their concern for peace during the week devoted to the Prince of Peace. Their discussions led them to Raytheon, heart of the Massachusetts military-industrial complex, as the logical focus for their concerns.

The Sudbury Economic Conversion Group is assuming its share of the responsibility for the use of the economic and human resources of the area,and therefore is taking its concerns to Raytheon, Sudbury's chief economic enterprise.

The University Christian Movement of New England is relating religious and educational groups to problems of social concern in the New England Region. They are printing this pamphlet as part of their work.

Members of these groups and a variety of individuals have begun efforts to convert the company. Businessmen, clergymen, housewives, students and teachers, laymen and laywomen, industrial workers and secretaries, and others have become involved. Some have demonstrated at Raytheon headquarters or picketed at the annual meeting of stockholders. Some have not involved themselves in such activities but have begun dialogues and studies with individuals in the company. Others have begun speaking with members of the International Brotherhood of Electrical Workers (IBEW) and leafleting Raytheon facilities. Others have undertaken in-depth studies, such as this one, about the company and about economic conversion.

We believe that these and other activities need to be developed on a wide scale over a long period of time in order to make Massachusetts a fine and human state, instead of a deteriorating warfare state.

The National Urban Coalition's new book, Counterbudget [51] calls for a $14 billion reduction in the next fiscal year from the current $74.5 billion defense budget, and a further $10 billion reduction the following year.

This group is comprised of national figures representing government agencies, banks, universities and corporations which would gain more than they would lose from a significant rechanneling of resources from the military to the civilian sector. The fact that the Urban Coalition can make such conclusions after an exhaustive study based on rather conservative assumptions demonstrates that a wide variety of people in our society are rapidly coming to grips with some of the issues analysed in this pamphlet.

The President of the U.S. tells us that the war is rapidly winding down, while the air war winds up and as many or more Southeast Asians are being killed daily as a year ago. The Secretary of Defense speaks of a declining portion of the nation's resources going to the military while requesting a $6 billion increase in the military budget. The government sold last year $700 million worth of arms under the Food for Peace Program. Raytheon Company tells us they have no relationship to the war, when they have an extensive involvement. The Company attempts to pass its diversification off as conversion, while planning to greatly expand its military production in the next few years.

Such glaring inconsistencies in a time of increasing economic and political crisis demand of the citizens of our communities the formation of groups and coalitions disposed to meet the problem head-on. We hope that concerned people will feel the sense of urgency with which we must address the problem.

FOOTNOTES

1. "Raytheon Company Field Report," Harris, Upham & Co., October, 1968, p. 5. A securities analysis recommending investment in Raytheon, a company with a future.
2. *The War Business*, George Thayer (Avon Paberback), c. 1969, pp. 249,232,234.
3. *Militarism and Industry*, Victor Perlo (International Publishers), c. 1963, p. 43.
4. *The War Business*, p. 186.
5. Data computed by the author from *Fostering Industrial Growth in Massachusetts, Vol. I: Effects of Cutbacks in Defense Spending on the Economy of Massachusetts, 1968-1972*, by Arthur D. Little, Inc., c. 1970.
6. Interlocking directorates found in *Poor's Register of Corporations, Directors, and Executives*, 1970.
7. *Commercial Banks and Their Trust Activities: Emerging Influence on the American Economy*, Vol. 1, staff report for the Subcommittee on Domestic Finance of the Committee on Banking and Currency, House of Representatives, 90th Congress, 2nd session, July, 1968, p. 121.
8. *Ibid.*, p. 1.
9. *Ibid.*, pp. 558-9.
10. This information is reported in detail in various proxy statements issued by Raytheon in the years 1962-1970.
11. This data is extracted from *Moody's Banking and Finance Manual, 1971.* The Massachusetts Investors Growth Stock Fund holds 200,000 shares of Raytheon common stock. The Massachusetts Investors Trust holds 201,700. W.B. Moses, Jr. and J.L. Cooper are respectively the President and Chairman of both boards. The Fidelity Trend Fund holds 380,000 shares. D.G. Sullivan is President and E.C. Johnson, 2nd is Chairman.
12. For a portrait of the militarization of Federal spending, see *The Economy of Death* by Richard Barnet (Atheneum), c. 1969, paperback. It is written for the layman and is fairly brief.
13. For a sampling of how these domestic needs conflict with present military policy and power, read the book *National Priorities*, c. 1969. It is a collection of articles by leading senators, government officials, labor leaders, and professors.
14. "Defense and Smart Money," *New York Times* editorial, February 14, 1971, as reported by Derek Shearer in "A Reader's Guide to the Warfare State," *Ramparts*, June, 1971.
15. "A Reader's Guide to the Warfare State," Derek Shearer, *Ramparts*, June, 1971.
16. For up-to-date developments in the new anti-personnel air war strategy see *Investigation into the Electronic Battlefield Program*, hearings before the Electronic Battlefield Subcommittee of the Preparedness Investigating Subcommittee of the Senate Committee on Armed Services, November 18, 19, and 24, 1970.
17. "Registration Muzzles Raytheon as Guards Outnumber Protesters," *Boston Globe*, May 27, 1971.
18. "Raytheon Company Field Report," W.E. Hutton & Co., February, 1971, p. 14.
19. "Raytheon Company Field Report," Harris, Upham & Co., October, 1968, p. 5.
20. W.E. Hutton & Co. "Field Report," p. 10.
21. *Ibid.*, p. 15.
22. *Ibid.*, p. 17.
23. *Air Force Manual 101: USAF Basic Doctrine*, c. 1964, section 3-11.
24. *ABM, MIRV, SALT, and the Nuclear Arms Race,* hearings before the Subcommittee on Arms Control, International Law and Organization of the Committee on Foreign Relations, U.S. Senate, 91st Congress, 2nd session, 1970, March 16, p. 14. These hearings provide a good background to the entire nuclear arms race field.
25. "First U.S. Submarine Set Out with Multiple-Warhead Missile," *New York Times*, April 2, 1971.

26. W.E. Hutton & Co., "Field Report," pp. 14-16.

27. *Ibid.*

28. *Ibid.*

29. "B-1 Contractors selected," *Defense Industry Bulletin*, July, 1970, pp. 30-31.

30. For a good account of the relationships between the B-1A and the SST see *The War Profiteers*, Richard F. Kaufman (Bobbs Merril), c. 1970, pp. 82-87. See also "The Manned Bomber," by Mary McCarthy, in *The Pentagon Watchers*, Leonard S. Rodberg and Derek Shearer, Eds. (Doubleday paperback), c. 1970.

31. *The Pentagon Watchers*, p. 247.

32. *The War Profiteers, Richard Kaufmann (Bobb*

32. *The War Business*, pp. 232, 234, 249.

33. *The War Profiteers*, Richard F. Kaufmann (Bobbs Merril), c. 1970, p. 148. Mr. Kaufmann was chief researcher for the Subcommittee on Economy in Government of the Joint Economic Committee during the 1968-69 hearings often referred to in defense industry studies.

34. *Ibid.*, p. 62.

35. *Militarism and Industry*, p. 43.

36. W.E. Hutton & Co., "Field Report," p. 14.

37. *Economics of Military Procurement*, hearings before the Subcommittee on Economy in Government of the Joint Economic Committee, 90th Congress, 2nd session, Part I, November 11, 1968, pp. 57-65. This testimony of Murray L. Weidenbaum is one of the clearest available on excessive military profits.

38. *Ibid.*, Part II, November 14, 1968, pp. 8 and 12. This testimony of Admiral Rickover is also important.

39. For a good summary in 30 pages of the various forms of subsidies to, the high profits of, and the wasteful practices of the large military producers see "Economics of Military Procurement," report of the above mentioned subcommittee, May, 1969.

40. "Balancing Military and Civilian Programs," Charles Schultze, in *National Priorities*, c. 1969, p. 35.

41. Raytheon New York Stock Exchange listing A-14362, August 1, 1952.

42. See *Pyramiding of Profits and Costs in the Missile Procurement Program*, hearings before the Permanent Subcommittee on Investigations of the Committee on Government Operations of the U.S. Senate, 87th Congress, 2nd session, 1962. There are two volumes of hearings on Western Electric's Nike program.

43. "Pentagon Accountability," Senator William Proxmire, in *National Priorities.*

44. "Neutralize Southeast Asia Now," Denis Healey, *New York Times*, February 23, 1971, p. 37.

45. "Raytheon Company Prospers Despite Big Slowdown in the Defense Industry," *Wall Street Journal*, March 5, 1971.

46. *Ibid.*

47. Harris, Upham & Co., "Field Report," p. 3.

48. The sales figures quoted here in the 3 areas of acquisitions are from the W.E. Hutton "Field Report".

49. "At Raytheon There's a Solution," *Boston Sunday Globe*, Laurence Collins, December 13, 1970.

50. *Counterbudget* is something to read to find out just how the liberal establishment leaders who do not have large personal stakes in the war economy are thinking and moving politically around economic conversion. It is also helpful to read to see how a large shift in the allocation of resources by the government could happen. *Counterbudget: A Blueprint for Changing National Priorities, 1971-1976*, The National Urban Coalition (Praeger), paperback, c. 1971.

APPENDIX I

COMPANY DIVISIONS, DIVISION LOCATIONS, AND MILITARY PROGRAM CATAGORIES

The following lists most of the major catagories and systems that Raytheon is working on in 1971, exclusive of standard production runs on older systems. The source is the *Defense Marketing Survey*, "Market Intelligence Report: Raytheon," June, 1970:

Equipment & Space & Information Systems Division

Waltham, Wayland, Norwood, North Dighton, Sudbury and Burlington, Mass.; Santa Barbara, Calif., and Alexandria, Va.

Communication and information systems and components: multiplexers and related parts, milimeter-wave radio system for point-to-point wideband data communication system, digital data link equipment development..

Fire control systems and components: Tartar fire control radar, electronic counter-measures systems.

Navigation and guidance systems and components: ground controlled approach radar development, Poseidon guidance and control systems.

Missile Systems Division

Andover, Bedford and Lowell, Mass., Bristol, Tenn., Oxnard, Calif., and White Sands, N. M.

Fire control systems and components: Hawk acquisition and illuminator radars, Sam-D radar development, Safeguard missile site radar.

Guidance and control systems and components: Aegis radar and weapons control development, AIM-82A air-to-air dogfighter missile, bomber defense research, B-1 radar development, Chaparral guidance and control systems, Shilelagh infrared command and guidance, Sidewinder guidance and control, Sparrow 3 acquisition radar computer and display.

Ordinance systems and components: bomb fuzes.

Reconnaissance systems and components: over-the-horizon radar.

Submarine & Signal Division

Portsmouth, Rhode Island and New London, Conn.

Reconnaissance and surveillance systems and components: detecting and ranging systems, sonar systems.

Machlett Laboratories

Springdale, Conn.

Reconnaissance and surveillance systems and components: image intensifier systems.

The following lists most of the major catagories and systems that Raytheon is working on in 1971, exclusive of standard production runs on older systems. The source is the Defense

APPENDIX II

THE DIRECTORS OF RAYTHEON

In addition to the major interlocks in the state of the 6 Raytheon directors discussed in the text, the following interlocks illustrate further the position of the company's leaders:

CHARLES F. ADAMS, Chairman of the Board, Raytheon.

First National Bank of Boston, Liberty Mutual Insurance Co., Liberty Mutual Fire Insurance Co., Northeastern University, Pan American World Airways, Gillette Co., Childrens Hospital of Boston, Industrial School for Crippled Children, Woods Hole Oceanographic Institute, Massachusetts Bay United Fund, Inc., Greater Boston Chamber of Commerce, Associated Industries of Massachusetts, National Security Industrial Association, Massachusetts Humane Society.

CHARLES F. AVILA, Chairman of the Board, Boston Edison Company.

Liberty Mutual Insurance Co., Liberty Mutual Fire Insurance Co., Northeastern University, John Hancock Mutual Life Insurance Co., National Shawmut Bank of Boston, Associated Industries of Massachusetts, Edison Electric Institute, Civic Forum for Boston, Electrical Coordinating Council for New England, Northeast Power Coordinating Council, Massachusetts Bay United Fund, Inc., Yankee Atomic Electric Co., Boston Five Cents Savings Bank, Association of Edison Illuminating Companies, Committee for the Central Business District.

HARVEY BROOKS, Dean of Engineering and Applied Physics, Harvard University.

Naval Research Advisory Committee, National Science Board, National Academy of Sciences, Smith College, Case-Western Reserve University, Woods Hole Oceanographic Institution, Volunteers for International Technical Assistance, Hudson Institute.

ROGER C. DAMON, Chairman of the Board, First National Bank of Boston.

Boston Edison Co., Northeastern University, Liberty Mutual Insurance Co., Boston College, Old Colony Trust Co., First Capital Corp. of Boston, New England Mutual Life Insurance Co., Bank of Boston International, Firstbank Financial Corp.,Massachusetts Bay United Fund, Inc., Corporacion Financiera de Boston, Bank of Boston Trust Co. of the Bahamas, Ltd.

ELI GOLDSTON, President, Eastern Gas and Fuel Associates.

First National Bank of Boston, Arthur D. Little, Inc., Boston University Medical Center, Hebrew Union College, Midland Enterprises, Inc., Ohio River Co., Castner, Curran, & Bullitt, Inc., Connecticut Coke Co., Mystic Steamship Corp., Transportation Association of America, United Fund of Greater Boston, Greater Boston Chamber of Commerce, National Coal Policy Conference, Boston Tow Boat Co., Eastern Associated Coal Corp.

WILLIAM J. HOGAN, President, Victory Carriers, Inc.

Nathan Hale Life Insurance Co., Franklin National Bank, Menasco Manufacturing Co. Cherry Burrell Corp., Page Airways, Inc.

D. BRAINERD HOLMES, Director of Raytheon.

Director of Raytheon since 1963, and Executive Vice President, previously with NASA and RCA.

THOMAS L. PHILLIPS, President, Raytheon.

President since 1964, and Chief Executive Officer, previously head of Missile and Space Division, Northeastern University, Hohn Hancock Mutual Life Insurance Co., National Shawmut Bank of Boston, Gordon College, Gordon Divinity School.

ROBERT W. STODDARD, Chairman of the Board, Wyman-Gordon Co.

First National Bank of Boston, Worcester Telegram and Gazette, Inc., Worcester County National Bank, Worcester County Institution for Savings, Worcester Hahnamann Hospital, Worcester Polytechnic Institute, Foundation for Economic Education, Inc.

GERALD H. WESTBY,

Formerly Chairman of the Board, Seismograph Service Corp., acquired by Raytheon, First National Bank and Trust Co. of Tulsa, Brookside State Bank of Tulsa, University of Tulsa,

ALBERT L. NICKERSON, Director, Raytheon.

Elected to Raytheon's Board in 1970, at the time of his retirement from the Board of the Mobile Oil Company.

APPENDIX III

LOWELL: A PRINCIPAL RAYTHEON COMMUNITY

Lowell's economy has become heavily dependent on military production, and Raytheon is the most important firm in the picture. The company is Lowell's largest employer and a large number of workers at Raytheon facilities in nearby cities live in Lowell. Much of the community's consumer buying power is sustained by the company. Yet dependence upon a military economy has not proved very viable,since Lowell's extremely high rate of unemployment (13.2% in June, 1971) may be traced directly to layoffs in military production.

Lowell's old industrial base in textiles and shoes has erroded drastically since World War II. Greater Lowell employment in textiles fell from 13,000 in 1947 to 5,000 in 1963 and employment in leather went from 3,000 to 2,500 (figures from "Population and Economic Growth: Postwar Perspective", by the Greater Lowell Area Planning Commission).The work force of the community had to turn to military and space industries for employment. For example, Greater Lowell employment in ordinance increased from nothing in 1947 to 3,000 in 1963, 23% of ordinance employment in the Boston Area at the time.

Lowell's extremely high rate of unemployment may be traced directly to layoffs in military production. According to the *Lowell Sun*, one study by the state Division of Employment Security (DES) shows 48% of the persons receiving unemployment compensation checks through the local office as previously employed outside the area, especially along Route 128. More than half of the people seeking work have high skill levels, and 14% have professional, technical, and managerial talents. The DES Area Manpower Review suggests that many were victims of the defense cutbacks which have severely hit industry on the Route 128 belt (*Lowell Sun*, August 6, 1971).

Good superhighways, routes 495, 93, 3, and 128 connect Lowell with nearby military industry. Lowell Technological Institute has provided trained engineers and technicians. Consistently high unemployment has provided military industry with a pool of relatively cheap labor for production workers, janitors, and secretaries.

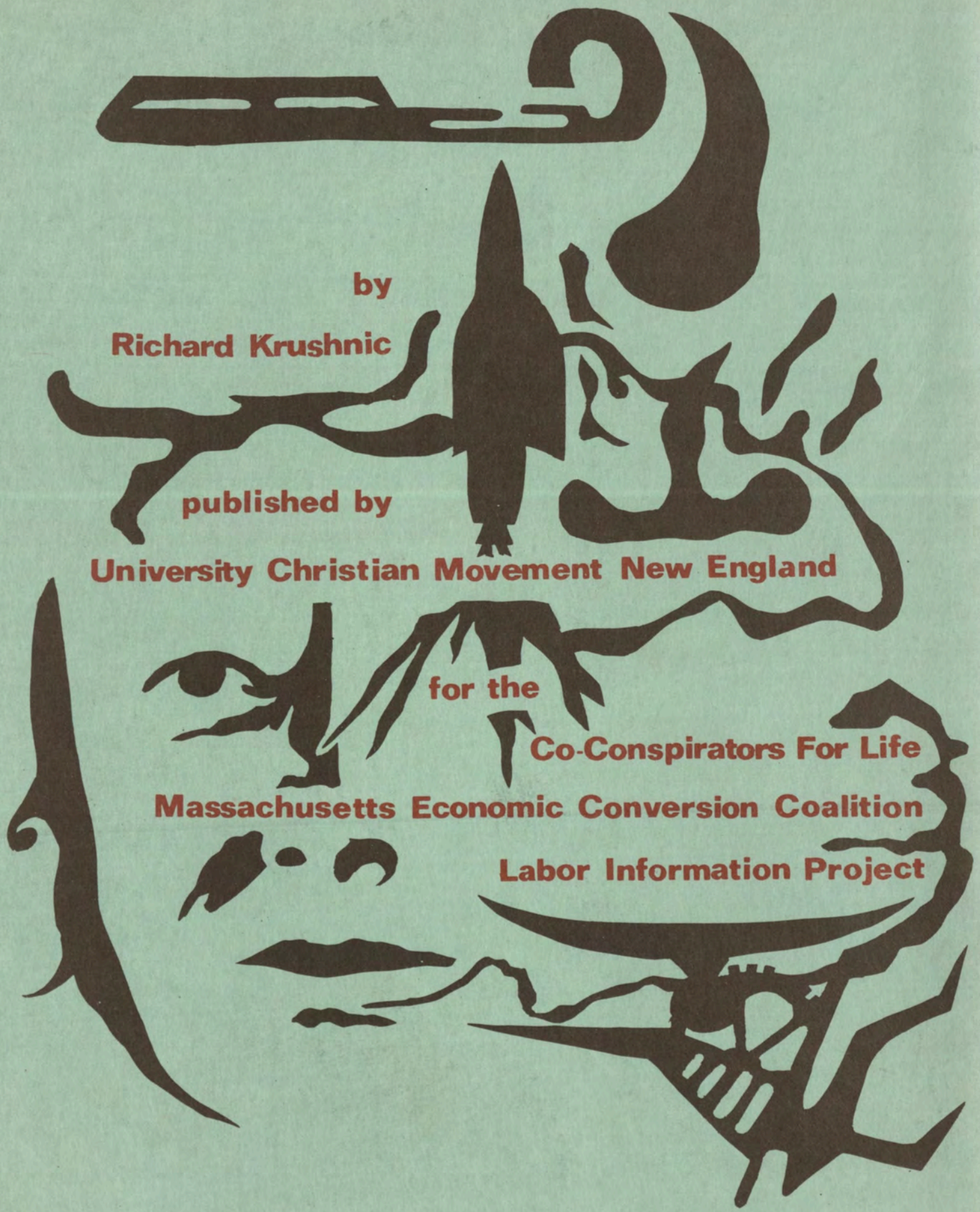
Raytheon's biggest dollar volume military plant is located in Lowell, where Sparrow and Sidewinder air-to-air missiles are assembled. These missiles have provided the firm with a large portion of its income. Other Raytheon plants are located within easy communing distance of Lowell, especially in the case of the Andover plant, which builds the Hawk surface-to-air missile, the company's most important product. Employment at the Andover plant has recently varied between 1,000 and 1,500. This facility accounted for roughly $100 million in military work in 1969, and is only 7 miles away. Other examples are Burlington, which is only 15 miles away, and the large Bedford Missile Systems Division, 13 miles away. Some Lowell residents commute up to 25 miles to other plants such as the one in Waltham.

Lowell is the best community in which long-term, multi-issue community work will find an increasing relationship to the political strategy of economic conversion in general and to Raytheon in particular. The instability of the military labor market and the total irrelevance of military production to the needs of the community offer interesting issues for community and labor groups to explore.

FOR FURTHER INFORMATION CALL OR WRITE

CONVERT RAYTHEON

617-969-7901 **474 Center Street, Newton, Massachusetts 02158**



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